REMARKS

DETAILED ACTION

Claim Rejections - 35 USC §112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 25 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. The independent claim (21) teaches transferring vibrational energy through the air as the only option yet claim 25 teaches transferring vibrational energy via mechanically coupling the vibration source. Prior to the most recent amendment, both were option. With the most recent amendment, the independent claim teaches only air. Appropriate correction is required.

3A. Applicants have amended Claim 21 to comprise the option of

a) via a mechanical coupling a vibrational energy and said stencil by placing a material between a vibrational energy source and said stencil; and

b) via applying vibrational energy through the air, directing said vibrational energy towards the at least one of electronic assembly, stencil, and tooling related to manufacture of electronic assemblies,

Claim 25 has been amended to comprise the limitation: "wherein the step of applying vibrational energy by transferring the vibrational energy for drying is accomplished by:

applying vibrational energy through the air, wherein said vibrational energy is directed towards the at least one of electronic assembly, stencil, and tooling related to manufacture of electronic assemblies."

comprises the requirement of the element of the transfer of vibrational energy via mechanically coupling the vibration source. Applicants earnestly believe the amendment to Claim 21 making this optional overcomes the rejection of Claim 25 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants respectfully request the Examiner reconsider the rejection of Claim 25 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351 (a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. The Examiner has rejected Claim 21 under 35 U.S.C. 102(e) as being anticipated by Kamikawa et al. (USPN 6,119,367).

Kamikawa teaches a method of cleaning an electronic assembly (wafer) by immersing in a washing fluid. Vibrational energy is transferred through air for drying (abstract, figure 5, col 8 lines 1-38 and col 10 lines 34-67).

Kamikawa claims a priority date for the US filing as March 05, 1999, with a priority date of a foreign application as march 10, 1998.

Under 37 CFR 1.131, an affidavit or declaration can be used to overcome a cited patent or publication:

A) Where the publication date of the cited art is less than 1 year prior to the filing date of the Applicant's effective filing date.

B) The patent shows but does not claim the same patentable invention.

Respective to (A): The present application claims priority and was co-pending to the parent application 09/621,249 filed on July 21st, 2000, now USPN 6662812, issued on Dec. 16, 2003, which claims priority to provisional application, Ser. No. 60/145,524 that was filed on July 24th, 1999. The cited art, Kamikawa, et al. has a publication date of September 19, 2000. Therefore, the present claims have a priority date within one (1) year of the publication date of the cited art.

Respective to (B): Independent Claim 21 is a method claim. Applicants believe that Kamikawa, et al. does not claim the same invention, as the claim 21 is limited to "at least one of electronics assembly, stencil, and tooling related to manufacture of electronic assemblies". Kamikawa, et al. does not include any of these limitations with the Kamikawa, et al. method claims 12-23.

Applicants believe the claimed invention meets the requirements under 37 CFR 1.131, where an affidavit or declaration can be used to overcome a cited patent or publication.

"The established date should be earlier than the effective date of the cited art. The effective date of a domestic patent when used as a reference is not the foreign

filing date, therefore the date to overcome under 37 CFR 1.131 is the effective US filing date, not the foreign priority date."

Applicants have submitted in prosecution of the parent application, now Patent no. 6,662,812 issued on December 16th, 2003, an affidavit and supporting exhibits claiming the date of inventorship to be prior to the effective US filing date of Kamikawa, et al. Applicant has submitted a copy of the same herein.

Applicants earnestly believe they have overcome the rejection of Claim 21 under 35 USC 102(e) as being clearly anticipated by Kamikawa et al. by the affidavits and exhibits submitted herein. Applicants respectfully request the Examiner reconsider and withdraw the rejection of Claim 21 under 35 USC 102(e) as being clearly anticipated by Kamikawa et al..

6. The Examiner has rejected Claims 21-40 under 35 U.S.C. 102(e) as being anticipated by Asai et al. (USPN 5,988,060).

Asai teaches an apparatus and method of cleaning a stencil after screen printing (col 16 lines 35-50) by wiping with wet paper (col 28 lines 51-67 and col 41 lines 25-35) and applying ultrasonic vibration through air (col 26 line 58 - col 27 line 10) and the washing fluid. Fluid and vacuum are applied (col 27 lines 11-52 and col 37 lines 8-27). The apparatus comprises mechanisms for aligning areas, placing solder, cleaning the stencil and applying vibrational energy through air or a fluid medium (col 16 lines 35-50

and col 26 line 58 - col 3 line 65). The drying device is moved with the vibrator relative to the screen. Although the reference does not explicitly disclose drying the stencil, since vibrational energy is supplied to a screen which is not submerged, the vibrational energy would move a portion of the washing agent through the holes in the screen thereby partially aiding the drying process which follows (col 12 lines 50-62).

6A. Applicants have amended Independent Claims 21, 26, and 35 to more clearly and concisely define the present invention by introducing the limitation of applying vibrational energy after a fluid cleaning system as a method of drying the stencil.

Asai, et al. utilizes a hold down member 860 opposing the ultrasonic horn 632. This entraps any moisture within the apertures of the stencil / between the two objects, thus not allowing any vibrational energy to dry the stencil during the cleaning process. If one were to employ the vibrational energy at a level for drying while cleaning, one would defeat the cleaning process. Applicants respectfully direct the examiner to FIG.'s 7 and 8 which illustrate the vibrational energy source 48 placed after the fluid cleaning apparatus. When cleaning, one does not want to remove (i.e. dry) the fluid. That would hinder the cleaning process. The purpose would be to apply vibrational energy AFTER the cleaning process, hence the separation between the fluid cleaning and the drying devices in the illustrations and the amendment to each of the independent claims.

Applicants have amended Independent Claim 21 to comprise the following limitations:

21. *cleaning at least one of electronic assembly, stencil, and tooling related to manufacture of electronic assemblies by applying a fluid to said at least one of electronic assembly, stencil, and tooling related to manufacture of electronic assemblies via a fluid application apparatus,

applying a drying step utilizing vibrational energy in accordance with at least one of:

a) via a mechanical coupling a vibrational energy and said stencil by placing a material between a vibrational energy source and said stencil; and

b) via applying vibrational energy through the air, directing said vibrational energy towards the at least one of electronic assembly, stencil, and tooling related to manufacture of electronic assemblies,

wherein said vibrational energy is to aid in drying the at least one of electronic assemblies and tooling related to manufacture of electronic assemblies **by applying vibrational energy to a section of said at least one of electronic assembly, stencil, and tooling related to manufacture of electronic assemblies via a vibrational energy application apparatus, wherein said vibrational energy application apparatus applies said vibrational energy after said fluid cleaning step, where said vibrational energy is applied for atomizing residual moisture droplets**

resident to the at least one of electronic assemblies and tooling related to manufacture of electronic assemblies."

Applicants earnestly believe introducing the limitation of "via a mechanical coupling a vibrational energy and said stencil by placing a material between a vibrational energy source and said stencil; and" still overcomes Tano (JP 10156298A), wherein Tano teaches direct coupling of said vibrational energy to generate and apply heat for drying. Applicants utilize a material between said vibrational source and said stencil to transfer the vibrational energy to atomize the moisture molecules using vibrational energy, not heat. Multiple heat cycles will alter critical dimensions of the stencil.

Applicants have amended Independent Claim 26 to comprise the following limitations:

26. "applying a fluid to a section of a solder stencil for cleaning said solder stencil for a fluid cleaning process,

applying vibrational energy by at least one of mechanically coupling a vibrational energy source and the solder stencil and transferring the vibrational energy through the air directed towards the solder stencil,

moving said vibrational energy source respective to said solder stencil, and

applying said vibrational energy to apply a vibrational energy to said solder stencil, wherein said vibrational energy application apparatus applies said vibrational energy after the fluid cleaning process, where said vibrational energy is applied to assist in drying any residual fluid from said solder stencil by atomizing said residual fluid away from a top surface of said solder stencil."

Applicants have amended Independent Claim 35 to comprise the following limitations:

36. "applying a fluid based cleaning process to at least one of the stencil and a wiping material; and

applying vibrational energy by at least one of:

through the air,

via mechanical contact to the stencil, and

to the wiping material,

wherein said vibrational energy is applied towards said solder stencil, wherein said vibrational energy application apparatus applies said vibrational energy after said fluid cleaning process, where said vibrational energy is applied to aid in drying the stencil wherein said vibrational energy for drying is applied in a manner to evaporate the material via the top of said stencil."

Applicants earnestly believe the rejection of Independent Claims 21, 26, and 35 under 35 U.S.C. 102(e) as being anticipated by Asai et al. have been overcome by amendments and remarks submitted herein. Applicants respectfully request the Examiner reconsider and withdraw the rejection of Independent Claims 21, 26, and 35 under 35 U.S.C. 102(e) as being anticipated by Asai et al.

Claims 22-25 depend directly or indirectly from Independent Claim 21. Applicants earnestly believe the rejection of Independent Claim 21 has been overcome by amendment and remarks herein.

Regarding Claim 25: Claim 26 additionally comprising the limitation of "wherein the step of applying vibrational energy by transferring the vibrational energy for drying is accomplished by:

applying vibrational energy through the air, wherein said vibrational energy is directed towards the at least one of electronic assembly, stencil, and tooling related to manufacture of electronic assemblies". The drying process was defined as after the fluid cleaning process in intervening Claim 21. Asai, et al. fails to teach two separate vibrational energy processes, one distinctly for cleaning and a second for drying.

Claims 27-34 depend directly or indirectly from Independent Claim 26. Applicants earnestly believe the rejection of Independent Claim 26 has been overcome by amendment and remarks herein.

Claims 36-40 depend directly or indirectly from Independent Claim 35. Applicants earnestly believe the rejection of Independent Claim 35 has been overcome by amendment and remarks herein.

Applicants earnestly believe the rejection of Depending Claims 22-25, 27-34, and 36-40 under 35 U.S.C. 102(e) as being anticipated by Asai et al. have been overcome by amendments and remarks submitted herein. Applicants respectfully request the Examiner reconsider and withdraw the rejection of Depending Claims 22-25, 27-34, and 36-40 under 35 U.S.C. 102(e) as being anticipated by Asai et al.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The Examiner has rejected Claims 22-24 under 35 U.S.C. 103(a) as being unpatentable over Kamikawa et al. (USPN 6119367) in view of Kobayashi et al. (USPN 6178974 B1).

Kamikawa teaches a method of cleaning an electronic assembly (wafer) by immersing in a washing fluid (col 10 lines 7-33). Vibrational energy is transferred through air for drying (abstract, figure 5, col 8 lines 1-38 and col 10 lines 34-67). However the cleaning process is not further disclosed.

Kobayashi teaches a method of cleaning an electronic assembly (wafer) by immersing in a washing fluid and applying vibrational energy as is conventional (figure 1 and col 2 line 45 -col 3 line 27).

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ ultrasonic vibration for cleaning as is known in the art. By using ultrasonics for both cleaning and drying, wafers can be cleaned thoroughly and quickly without use of dry gas or organic solvents (Kamikawa, col 1 lines 21-54).

8A. Applicants have resubmitted an affidavit that was previously submitted in the prosecution of the parent application to overcome Kamikawa as presented in section 5A submitted herein.

Applicants earnestly believe the rejection of Claims 22-24 under 35 U.S.C. 103(a) as being unpatentable over Kamikawa, et al. in view of Kobayashi, et al. based upon the change in applicability of the Kamikawa, et al. reference. Applicants respectfully request the Examiner reconsider and withdraw the rejection of Claims 22-24 under 35 U.S.C. 103(a) as being unpatentable over Kamikawa, et al. in view of Kobayashi, et al..

CONCLUSIONS

Applicants believe the amendments and remarks herein provide a complete response to the Office Action mailed on September 25th, 2006. The Examiner has established a shortened statutory period of three (3) months for response to the Office Action. Applicants have responded to the Office Action on or before December 26th, 2006 (December 25th is Christmas, a national holiday) with a proper certificate of correspondence. Therefore, the Applicants believe the response is timely and no additional fees are required.

Applicants believe Amendment D submitted herein is in proper format and meets the proper identification terminology as directed by 37 CFR § 1.121 for both the originally submitted and currently pending claims.

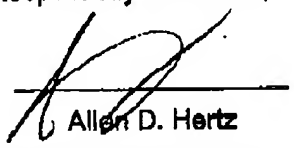
Applicants believe that no new matter has been introduced.

The present application, after entry of this amendment, comprises twenty (20) claims, including three (3) independent claims. Applicant has paid for twenty (20) claims, including three (3) independent claims. Applicant, therefore, believes that no additional fee respective to claims is currently due.

If the Examiner believes that there are any informalities that can be corrected by Examiner's amendment, a telephone call to the Applicant (Allen Hertz) at (561) 883-

0115 (Office)(Please leave a message) or (561) 716-3915 (Cell phone) is respectfully solicited.

Respectfully submitted,



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